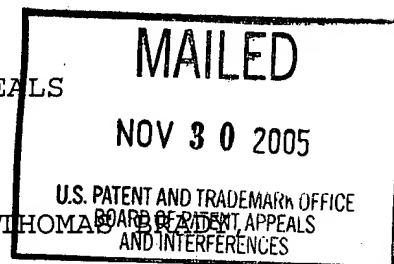


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte JENNIFER Q. TRELEWICZ, MICHAEL THOMAS  
and JOAN LAVERNE MITCHELL



Appeal No. 2005-2602  
Application 09/693,090

ON BRIEF

Before KRASS, JERRY SMITH and BLANKENSHIP, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-29, which constitute all the claims pending in this application.

The disclosed invention pertains to a computer method and apparatus which enables a processor to simultaneously process multiple multi-bit data elements in a single register. A particular feature of the invention is that first and second multi-bit data elements in a single register are simultaneously

processed wherein at least one of a carry and a borrow may occur between data elements in the register.

Representative claim 1 is reproduced as follows:

1. A computer system, comprising:

a compiler receiving higher-level code and outputting lower-level code to enable a processor to simultaneously process multiple multi-bit data elements in a single register, the logic of the lower -level code including:

establishing at least first and second signed, multi-bit data elements in at least a first register;

and

simultaneously processing the elements, wherein at least one of: a carry, and a borrow, may occur between data elements in a register.

The examiner relies on the following references:

Mendel 6,080,204 June 27, 2000

Andrew C. Staugaard, Jr., Structured and Object-Oriented Techniques: An Introduction Using C++, Second Edition, Copyright 1997 by Prentice-Hall, Inc., pages 70 and 75.

Randall J. Fisher and Henry G. Dietz (Fisher), "Compiling For SIMD Within A Register," 1998 Workshop on Languages and Compilers for Parallel Computing, North Carolina, August 1998, pages 1-20.

Claims 6, 9, 11-18, 21, 23, 25, 26 and 29 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 1-6, 11-21 and 23-26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Fisher. Claims 5, 7-10, 22 and 27-29 stand rejected under

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35 U.S.C. § 103(a). As evidence of obviousness the examiner offers Fisher in view of Staugaard with respect to claims 5 and 29, and Fisher in view of Mendel with respect to claims 7-10, 22, 27 and 28.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

#### OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of anticipation and obviousness relied upon by the examiner as support for the prior art rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the specification of this application complies with the first paragraph of 35 U.S.C. § 112. We are also of the view that the evidence relied upon by the examiner fails to support the examiner's rejections of the claims on appeal. Accordingly, we reverse.

We consider first the rejection of claims 6, 9, 11-18, 21, 23, 25, 26 and 29 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Each of the rejected claims recites the term "input precision." The rejection is based on the examiner's assertion that the term "input precision" in the specification was amended by appellants in a manner that significantly altered its definition. The examiner asserts that there is no support for the amendment made to the specification such that the rejected claims contain new matter [answer, page 7].

Appellants argue that the amendment to the specification was accurate and that the new matter objection and written description rejection are incorrect [brief, pages 4-5]. The examiner responds that there is no evidence to support appellants' position that the amendment to the specification was made merely to correct an obvious error [answer, pages 4-5]. Appellants respond that the addition of bits to accommodate the output precision necessarily reflects the input precision of individual data elements after simultaneous operation has been accounted for [reply brief, page 1].

We will not sustain this rejection. We agree with appellants that the operation described on page 4, lines 14-20 of the specification supports the amendment made to the first paragraph of page 4. Specifically, the operation described at lines 14-20 sets forth that the initial input precision of the data element is extended based on the number of additions, subtractions, multiplications and by maximum negative number requirements. Thus, the input precision is adjusted based on the operations that will be performed. The operation described here appears to be consistent with the operation described in the remainder of the specification, but it is inconsistent with the first paragraph of page 4. We find that the amendment made by appellants to the first paragraph on page 4 simply attempts to make this portion of the disclosure consistent with the operation described at lines 14-20 of page 4 and elsewhere. That is, the input precision refers to the input precision of the data elements after they have been extended in the manner described above or, in other words, after the simultaneous operations have been considered. Therefore, we find that the amendment to the specification made by appellants was not new matter and was supported by the rest of the original disclosure.

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We now consider the rejection of claims 1-6, 11-21 and 23-26 under 35 U.S.C. § 102(b) as being anticipated by Fisher. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The examiner has indicated how the claimed invention is deemed to be fully met by Fisher [answer, pages 7-9]. Appellants argue that claim 1 recites that carries and borrows "may" occur between data elements in a register, whereas in Fisher, such carries and borrows are not allowed to ever occur [brief, pages 5-6]. The examiner responds that the term "may" in the claims means that the claims cover both a system where the carries and borrows do occur as well as a system where such carries and borrows do not occur. The examiner also responds that the affected clause should not be given patentable weight as it does

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not properly modify the corresponding limitation of "simultaneously processing the elements" by limiting or describing how the simultaneous processing is carried out [answer, page 5].

We will not sustain the examiner's anticipation rejection based on Fisher for essentially the reasons argued by appellants in the main brief. The examiner's position that the claimed invention is met by a device which never allows a carry or borrow to occur between data elements in a register is incorrect. In order for anticipation to be satisfied, the prior art must at least be capable of performing the recited functions of the claimed invention. The manner in which the term "may" is used in the claimed invention must be interpreted to mean that in appropriate situations, such carry or borrow between data elements in a register could occur and would be allowed to happen. Since Fisher never allows such carries or borrows between data elements in a register, Fisher does not fully meet the claimed invention.

We now consider the rejection of claims 5, 7-10, 22 and 27-29 under 35 U.S.C. § 103. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re

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Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the



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arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR § 41.37(c)(1)(vii)(2004)].

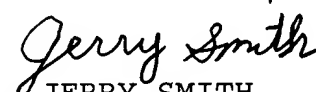
Each of the examiner's rejections of the claims under 35 U.S.C. § 103(a) relies primarily on Fisher. Since Fisher fails to support the examiner's findings for reasons discussed above, and since neither Staugaard nor Mendel overcomes the deficiencies of Fisher, the examiner has failed to establish a prima facie case of the obviousness of the rejected claims. Therefore, we do not sustain the examiner's rejections of the claims under 35 U.S.C. § 103(a).


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In summary, we have not sustained any of the examiner's rejections of the claims on appeal. Therefore, the decision of the examiner rejecting claims 1-29 is reversed.

REVERSED

  
ERROL A. KRASS )  
Administrative Patent Judge )

  
JERRY SMITH )  
Administrative Patent Judge )

  
HOWARD B. BLANKENSHIP )  
Administrative Patent Judge )

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